

(*Veterinary Series, No. 10.*)

THE
AGRICULTURAL LEDGER.

1895—No. 7.

—♦—
OXEN.

[*DICTIONARY OF ECONOMIC PRODUCTS, Vol. V., O, 551–94.*]

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ONGOLE OR NELLORE CATTLE.

*Note by VETERINARY CAPTAIN H. T. PEASE, F.Z.S., Assistant to Inspector General,
Civil Veterinary Department, Meerut.*

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Other PAPERS that may be consulted:

Agricultural Ledger, No. 19 of 1893.
Ditto No. 14 of 1894.



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The objects of THE AGRICULTURAL LEDGER are :—

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- 2) To secure the maintenance of uniform ledgers (on the plan of the Dictionary) in all offices concerned in agricultural subjects throughout India, so that references to ledger entries made in any report or publication may be readily utilised in all offices where ledgers are kept ;
- (3) To admit of the circulation, in convenient form, of information on any subject connected with agriculture or economic products to officials or other persons interested therein ;
- (4) To secure a connection between all papers of interest published on subjects relating to economic products and the official Dictionary of Economic Products. With this object the information published in the Ledgers will uniformly be given under the name and number of the Dictionary article which they more especially amplify. When the subject dealt with has not been taken up in the Dictionary, the position it very possibly would occupy in future issues of that work will be assigned to it.

E. C. BUCK,

Secretary to the Government of India.

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ONGOLE OR NELLORE CATTLE.

Note by VETERINARY CAPTAIN H. T. PEASE, F.Z.S., Assistant to Inspector General,
Civil Veterinary Department, Meerut.

The cattle bred in the districts of Nellore and Kistna, known by the name of "Ongole," have from early times enjoyed a wide reputation as milkers and for slow heavy draught. They are only found in perfection in the Ongole and Kadukur taluqs of Nellore and the Rajapett and Vernukonda taluqs of Kistna. These cattle are found to degenerate very rapidly when removed to other parts of the country unless they are particularly well fed and managed.

DESCRIPTION.—There are two varieties found in the district, a large and a small; but their expression of countenance and other distinguishing typical characteristics are so much alike that in describing the leading features of the breed, it is unnecessary to draw a line between them except in a few particulars.

The Smaller Cattle—have short legs and are more compact and hardy. These qualities come out prominently when they are located in hill districts, for which they are well suited. They are also the better milkers of the two, and more particularly is this the case when they are placed under conditions not favourable for milk production.

The animals of the large variety are inclined to be leggy and, as a whole, they are not so well knit together as the others. They do not milk so well as the smaller ones, taking their size into account, yet they are universally recognised as belonging to one of the best milking breeds.

Nellore cattle may be readily recognized from their form and appearance. They are heavy-built animals, docile, and sluggish in their movements, of mild temper and gentle disposition—qualities which should form the foremost characteristics of a milking breed.

The head is erect and well carried on a short stout neck. The horns are short and stumpy, and in well-bred animals are from 3 to 6 inches in length, but in others reach to 12 inches or more. They are generally slightly longer in the cow and more pointed: in position they incline outwards with a decided tilt backwards terminating in a more or less blunt point. They give to the head a very curious and characteristic appearance, the bulging forehead forming a very obtuse angle. The eyes

Description.

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OXEN.	Ongole or
Description.	<p>are large and mild ; face, short and fine ; forehead, broad ; ears of medium size, slightly drooping. The hump is well developed in the bull and bullock, and moderately so in the cow ; back short and often straight, but occasionally dipping ; loins wide but slack ; tail better set on than usual in Indian cattle, and not too coarse nor long ; fair depth and width of chest ; carcase heavy ; dewlap large and heavy and continued by loose skin under the chest. The limbs strong, massive ; feet soft and large. The cow is more slightly built ; the head light and fine ; dewlap fairly well developed ; carcase well shaped ; and there is a fold of skin running forward from the udder.</p> <p>The prevailing and true colour is white with black points, and frequently the bulls are black about the neck and shoulders. Shortt says : "They are noble and handsome-looking animals, but there is a tendency in the breed to grow tall and leggy with a spare light carcase." They are good animals for slow draught, and when well bred they draw heavy loads from 1,500 to 2,000 lb on a fair road.</p> <p>In point of size the variety is inferior to the Guzerat or Nagar cattle. Though the bullocks are sought for on account of their size, they are not good cattle on hard land, being soft and having bad feet. They are too slow and heavy for trotting, and their chief use is for agricultural draught.</p> <p>The following are the measurements of some ordinary cattle of the breed :—</p>

Ledger.

Measurements, etc., of the Nellore breed of Cattle.

Sex.	Age.	Nellore Cattle. (H. T. Please.)												OXEN.															
		Length.			Height at shoulder.			Width at forehead.			Length of face.			Girth at chest.			Girth at abdomen.			Girth of forearm.			Length of neck.			Length of shank.			Colour of hair.
Cow.	13	51	56	3	69	13	9	23	9	69	81	12	8	21	8	Brown	Red.												
"	10	52	54	29	71	12	81	20	8	66	76	13	9	15	8	Black	Grey-white.												
"	6	49	53	27	63	71	81	21	8	62	72	13	7	14	9	Do.	Do.												
"	13	53	54	27	70	13	8	22	8	66	75	13	6	16	8	Do.	Do.												
"	12	51	54	27	79	13	91	23	91	66	75	12	6	15	8	Do.	Do.												
"	10	47	50	24	63	10	7	20	7	63	70	14	6	16	8	Do.	Red broken colour.												
Bull.	9	54	58	30	69	7	91	23	10	70	77	12	71	18	9	Do.	Iron-grey.												
"	9	58	59	31	66	16	9	24	10	74	82	15	8	20	8	Do.	Do.												
"	11	58	60	33	73	9	91	24	11	73	80	15	71	19	81	Do.	Do.												
"	11	58	61	30	77	10	91	24	14	74	81	15	8	20	8	Do.	Do.												
"	7	54	56	31	66	5	91	23	12	68	72	14	71	18	8	Do.	Do.												
Bullock.	8	55	57	29	67	9	9	23	91	67	72	13	7	18	8	Do.	Do.												
"	8	54	56	27	75	9	81	23	9	65	63	12	5	24	8	Do.	Do.												
"	10	53	54	28	67	12	81	24	10	70	71	13	71	20	8	Do.	Do.												
"	10	55	56	28	75	9	71	23	91	71	76	14	8	21	9	Do.	Do.												

(MR. BENSON.)

OXEN.	Ongole or																																						
Number of Cattle.																																							
	<i>Early Celebrity.</i> —It has been remarked that cattle-breeding generally receives most attention in those countries where circumstances of one kind or other are adverse to the extensive prosecution of agriculture. Mr. Travers in the first settlement report of this district for Fush 1211 (1801-2), remarks the superior quality of the cattle and thus accounts for it :—																																						
	“Having been repeatedly deprived of their cultivation when brought to maturity, experience pointed out to the inhabitants of these districts the want of security for the fruits of their labour: as a substitute affording them this advantage, their attention and labour has been given to the rearing of large herds of black cattle of a superior breed much in demand, which they secured from the grasp of renters by moving them from their own to neighbouring villages, that from the system of petty renters were generally under a separate authority.																																						
	“From this cause a large portion of their cultivated lands have been appropriated to pasture, and the fear of my interference therein is one cause to which I ascribe their anxiety to keep me ignorant of their extent, as also a supposition that, by my immediately forming rents upon such accounts as I could obtain, they would embrace this favourite pursuit with other advantages resulting from my ignorance in this respect.”																																						
	From a return sent by Mr. Travers to the Board of Revenue on 16th June 1803, the number of horned cattle were stated to be—																																						
	<table style="margin-left: auto; margin-right: auto;"> <tr> <td>Nellore</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>237,931</td> </tr> <tr> <td>Ongole</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td>:</td> <td><u>54,474</u></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td><u>292,405</u></td> </tr> </table>				Nellore	:	:	:	:	:	:	:	237,931	Ongole	:	:	:	:	:	:	:	<u>54,474</u>									<u>292,405</u>								
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Nellore Cattle. (H. T. Pease.)	OXEN.
<p>The great apparent preponderance of female stock is probably to be accounted for by supposing the villagers to have given false returns of ploughing cattle and bullocks, in order to conceal their resources for cultivation. In fact all the totals are probably under the mark.</p> <p><i>Cattle Show at Addanki.</i>—With the view to encourage the breeding of good stock an annual cattle show has been established by Government which is held every year in January at Addanki, though one year it was removed to Ongole. There is also another cattle show with an exhibition of district products, such as indigo, salt, cotton, saltpetre, and agricultural implements, held about a month later at Nellore.</p> <p>The Addanki cattle show was established in 1859, when Mr. Elton was Collector, but the uniform success of the shows, as observed by Government (G.O., 19th March 1869, No. 765) has been chiefly owing to the personal energy and attention of Mr. Dykes, who lost no opportunity of rendering the exhibitions as attractive as possible to the ryots of his own and the neighbouring district. In 1859, prizes were given to the amount of Rs65, and the Committee drew attention to the fact that though the appearance of the animals showed that the people had generally produced the finest specimens of the breed of the two districts (Nellore and Kistna), there was an exception in the case of cows, and the full prize allotted in the programme was withheld as no specimens of "the old breed of heavy cows" for which both districts were once celebrated had been brought forward." There was, in fact, "some doubt whether this class of animals is still to be found among the people, owing partly to fine cows being so generally purchased to send away from the district, and partly, as stated by the ryots, to a succession of bad grazing seasons in recent years."</p> <p>In 1860, the prize list, with other expenses, amounted to Rs900, and it was remarked that the finest animals shown were "among the two-year old, which had certainly been bred since these shows commenced."</p> <p>In 1862, steps having been taken, calculated to overcome the scruples of the ryots in exhibiting their cows, a recommendation was submitted for additional prizes for heifers. The Committee who adjudged the prizes this year remarked on the progress that had been made in breaking through prejudices that had hitherto interfered with the show, and they observed that it was "a fundamental principle with the breeders of stock that the improvement of cattle depends as much, if not more, in the amount of care bestowed on the rearing of the cows as of the bulls." In forwarding to Government a recommendation on the part of the Committee that an additional sum of Rs200 should be granted as prizes for the furtherance of this important object, Mr. Dykes brought to notice that the Nellore cow is usually four years old when she gives her first calf.</p> <p>In 1863, Rs1,250 were allotted for prizes and a gold ring was given by the Governor, Sir William Denison. A true direction was marked out for the efforts of the exhibitors, and in 1864 good progress was made.</p> <p>In 1865, Sir William Denison himself attended the show at Addanki. It was remarked that the number of cows and heifers was particularly satisfactory, though relatively they were greatly inferior in size and appearance to bulls of all ages. Special encouragement, it was, therefore, determined by Government, should be given to the rearing and feeding of cows and heifers (G.O., 1st March 1865, No. 531).</p> <p>In 1866, the prize list was raised to Rs1,500, of which nearly one half was for cows and heifers, Rs700 against Rs200 previously, and in this year so satisfactorily were the prejudices of the ryots overcome that the cows and heifers formed the greater proportion of the animals exhibited.</p>	Cattle shows.

The Agricultural

OXEN.	Ongole or
Results of Cattle shows.	In 1867, the Committee remarked on the four-year old heifers being a remarkably fine show.
	In 1868, though there was a falling off in the total number of animals exhibited, the Committee commended on the marked increase in the number of the youngest stock brought forward to compete, and the progressive improvement of the heifers.
	The show of 1869 was particularly good. The following remarks of the Board of Revenue in proceedings, dated 11th February 1869, were made upon the report of the Committee : "The display of cattle, especially of young stock, was very good, and the exhibition, like its predecessors, was eminently successful. It is especially gratifying to find that these exhibitions are exercising a permanent influence in the district. Every year has shown increasing attention devoted to the care of breeding cattle, and whereas at first but few cows—and these of inferior description—were brought forward, the main feature of the exhibition now is the superior, well-fed and well-cared-for cows, heifers, and calves. Till recently the attention of the local breeders seems to have been concentrated on their male stock, and the contrast at the early shows between the magnificent bulls of all ages and the puny cows from which they sprung was most striking.
	"One most important result of the care which since the institution of these shows has been taken of breeding stock is the earlier age at which the cows begin to bear."
	In 1870, the cattle show was held experimentally at Ongole instead of Addanki. In consequence of the change, fewer cattle than usual were brought from the Kistna district to compete. The Committee stated in their report their belief that the show of cows and heifers was superior to any previous collection. A special prize of Rs 50 was offered by Mr. Dykes, who had left the district, for the youngest well-bred cow under four years of age, with calf at heel ; but no cows of three and four years old were exhibited, though there were 27 heifers of this age brought to the show stated to be in calf. The Committee remarked : "In the number and quality of young bulls there has also been a marked improvement year by year. In the classes of full-grown bulls and four and five-year old bulls, if there has been any change within the last two or three years, it would seem to be a falling off. The Committee have also doubts as to whether there has been a great improvement in the class of working bullocks. With regard to the number of cattle exhibited of all kinds, there has been a gradual increase annually, and this year upwards of 300 were on the ground—a total much in excess of any previous gathering." The sum expended in prizes was Rs 1,650, the chief change in the prize list being that ponies are excluded and three and four-year old heifers included.
	In 1871, the cattle show was again held at Addanki, but the Committee did not consider the show altogether a successful one. The prize animals indeed they considered to be quite up to the mark of the previous year, and in the quality generally of the cattle on the ground no falling off was noticeable, but there were only some 250 head against 300 in 1870. A most encouraging feature of this show was the class of four-year old cows. There was, however, no cow under four years old with calf at heel to compete for Mr. Dyke's prize, which was awarded to the best cow in the four-year old class. Mr. G. Vans Agnew, the present Collector, in sending up his report, offered these remarks with regard to the effects of this annual cattle show :—
	"My experience of Indian Agriculturists renders me altogether sceptical in regard to the possibility, within any definite period, of influ-

Nellore Cattle. (H. T. Pease.)	OXEN.
<p>encing them, either by precept or example, appreciably beyond their customary grooves of action. In breeding and rearing fine cattle with more care than obtains in most other parts of the country, the ryots of the sub-division are simply continuing to do what they and their ancestors have always comparatively excelled in. If it could be shown that a greater general degree of excellence either has been or is likely to be manifested as the result of the Addanki and Ongole cattle shows, then no argument will be needed in justification of the annual expenditure thereon, but I greatly doubt whether any such result either has been, or is likely to be, produced. As far as I have been able to gather, competition at these shows is restricted to a narrow circle of particular villages and individuals. Some of these individuals are capitalists and large breeders, while the rest are men of no mark or substance, who buy and rear a good beast or two with a single eye to speculating therewith for the prizes at the show. The former treat a few of their beasts exceptionally well with precisely the same limited object. The great bulk of their cattle, together with all the cattle not owned by this small clique, remains exactly what they would have been had no shows been instituted. In the end a good deal of public money is very easily obtained by a few individuals, and anything like general improvement in the breed of cattle is, in my opinion, neither effected nor to be expected.</p> <p>The Board of Revenue, however, took a more hopeful view of the effect of these shows. "It is impossible," they write, "to estimate the amount of good that may have been done by these exhibitions, but it is equally impossible to doubt that the great publicity that has been given to them has already had a considerable effect in raising the prices and spreading the fame of the Nellore breed (Mr. Boswell in 1868); and it would be contrary to reason to suppose that high prices and a widely extended market have had no effect in increasing the numbers and improving the breed of northern cattle. It is true that competition has been confined to a comparatively narrow circle of villages, and it is likely enough that animals are put up with the express object of gaining prizes; but these conditions are equally in force at all agricultural exhibitions, and it cannot be contended that they have had no effect in England in improving the breed of cattle. It is the commonest practice there to buy a good beast a few months before a show for the express purpose of gaining a prize, and it is quite open to question whether the rule (which the Board believe obtains both at Addanki and Nellore) excluding all cattle not <i>bona fide</i> bred or possessed for a specified period by the exhibitor, is not an injudicious one. It was of course never considered of importance that the ryots of this country should take an interest in exhibitions merely as exhibitions, and it is even probable that the actual number of exhibitors may continually decrease as the reputation of particular individuals becomes more widely known, but this again is a matter of no consequence whatever. Very few of the owners of cattle, even in England, breed with the object of improving cattle generally, but simply to get prizes first, and thus, in consequence, high prices for their cattle, and the number of exhibitors, as compared with the total number of breeders, is extremely limited even there. The period of twelve years, during which these shows have been in existence, is far from sufficient to decide what effect they may have ultimately."</p> <p>The great breeding country stretches from the river Palair and Musi in the Nellore district to the Ogeru in the Kistna district, and the reputation of the Nellore breed has been established, so that applications are received for bulls to be sent to the Central Provinces, Khandesh, etc. The cattle of the northern taluqs are much superior to those of the rest of the district. In the taluqs of Ongole and Kandukur the prices of well-bred</p>	<p>Results of Cattle shows.</p> <p>Breeding Tract.</p> <p>Average Price of Stock.</p>

OXEN.	Ongole or
Pasture Tax.	<p>bulls range from Rs 70 to Rs 300, bullocks from Rs 70 to Rs 200, cows from Rs 50 to Rs 200. In other parts of the district bulls and bullocks from Rs 20 to Rs 80, cows from Rs 15 to Rs 30. The prices of buffaloes range from Rs 5 to Rs 30, a higher price being usually fetched by she-buffaloes.</p> <p>The <i>pullary</i> or pasture tax, one peculiar to the Nellore district, was found in existence here, when the district came under British rule, under four different forms :—</p> <ul style="list-style-type: none"> I.—<i>Makta Pullary</i>.—A grass money assessment levied on the total common pasturage of a village and modified with reference to occupation out of the waste land for cultivation. II.—<i>Amanat Pullary</i>.—An addition made to the so modified tax on account of additions to the waste by lands thrown out of occupation, but within the original maximum. III.—<i>Alaga Pullary</i>.—The proportion of the Makta pullary charged on cattle owners in a village not being occupiers of land on puttah. IV.—<i>Yenika Pullary</i>.—A capitation tax on the cattle of a village, in fact the levy of the Makta pullary by distribution on a different principle when any of the payers in the latter form made default. <p>By Government Order, dated 13th November 1867, No. 2676, Land Revenue Department, the pullary tax of Nellore was abolished and a principle laid down for the future that out of the waste of each village an extent equal to 30 per cent. of the area occupied for cultivation should in future be reserved for common grazing, free of charge, and that the surplus waste, if sufficient in extent to make it worth while to adopt the system, be leased out for one or two years at a time to the highest bidder, it being of course understood that no land will be kept waste for grazing if sought for occupation on full assessment. The common reserve is to consist of fair average grazing ground, and is to be equally enjoyed by all the villagers. The <i>kanchas</i> or extensive grazing tracts, which have always been let out in lots, are not affected by these orders. The abolition of the pullary tax has been regarded as a great boon to the district, because cattle-breeding on a superior scale and system is here a special industry.</p>
Distribution of Nellore cattle.	<p><i>Districts depending on Nellore for Cattle Supply</i>.—The Nellore cattle supply is relied on by the ryot of the black cotton soil plains of Bellary, Kurnool and Cuddapah, where practically no cattle are bred. This supply is kept up by drovers who annually visit the districts named with strings of young bulls of from 18 months to 2 years of age. They never bring any other stock with them. They travel through the country and sell young bulls in every village and are paid by instalments, usually spread over three years, and generally collected without difficulty or litigation.</p>
Mode of rearing.	<p><i>General Management</i>.—The herds made up of cows contributed by the ryots of one or more villages are sent for pasturage about July to the large forest areas in the hilly country adjoining and are generally accompanied by one or two bulls; they remain in the jungles until the harvest is over, by which time the grazing in the hills is very scanty, and then return to their villages. Whilst they are in the hills they are left in charge of a few men who drive them to and from the jungles and pens. The bulls accompanying the herds are "swami" (brahmani) bulls belonging to no one.</p> <p>Calves are dropped at all seasons and are usually reared in the villages. No calves or very young stock are sent to the forests with the herds of cows.</p> <p>Besides forming the supply of cattle for the districts mentioned, this</p>

Nellore Cattle. (H. T. Pease.)	OXEN.
<p>breed is largely used in the Kistna district especially in the upland taluqs of the south.</p> <p><i>Yield of Milk.</i>—The milk yield is good. Some of the best cows have been known to yield 18 quarts and rear a calf at the same time. Two cows at the Saidapet farm when in full milk yielded about 84 measures, per month.</p>	<p>Yield of milk.</p> <p>Pasturing of cattle.</p>

PASTURE FOR CATTLE.

The system observed by the ryots of the different parts of the district depends, in some measure, on the extent of pasture land there may happen to be in the vicinity of the village. In the wet villages, with little or no unoccupied area available, the greater portion of the dry land is often held by the ryots on *puttah* as pasture for their cattle. On the other hand, in villages where any large extent of waste may be available and common to the whole of the villagers, such as scrub and fair jungle which affords good grazing, land will not be retained on *puttah* or reserved as pasture. To describe the pasture system of the district, it is requisite to refer to the several taluqs in order, and to specify the course generally pursued as regards each. In the southern and coast taluqs of Nellore and Gudur it is usual throughout the wet villages for all cattle, save the working bullocks and buffaloes, to be sent from the villages and pastured where land may be available and can be secured for the purpose during the period the occupied land may be under dry crop or wet cultivation. The bulk of the cattle thus generally leaves the villages during either September or October, and are sent sometimes to the western villages of their respective taluqs, but more generally to the extensive waste and jungle tracts in villages of Rapur. The cattle of Nellore taluq are as well, to some extent, sent away to the jungles to the south of Kavali and in the western parts of Atmakur and Udayagiri. Part of the working cattle will occasionally follow the other cattle to the jungle during November, or else in early December, should the available pasture land in the village not suffice for the whole number. The ryots often club together and send their cattle away in large herds, either one or more according to the size of the village and the number of herd of cattle. For this purpose, prior to the departure of the cattle from the village, the requisite arrangements are effected for renting a pasture farm for a fixed sum for the season, or else engagements are entered into with those who hold the pasture farms for the whole herd being pastured for the season at so much per head for each full-grown animal. The former course is usual where the herd may be large, and the latter in the case of a small number of cattle, several herds being accommodated on the same tract of jungle or farm. Throughout many of the villages of Nellore, Gudur, and Kavali large herds of cattle are reared and retained, partly for the purpose of manuring the wet land and partly for stock purposes, a considerable number of young animals being annually sold off. Should the north-east monsoons be favourable and extend till late, the cattle are pastured in the jungles till the end of January or early in February, when the paddy crop will have been to some extent harvested, and there will be grazing in the cut fields for the cattle. They are then driven back to the village. As the paddy crop continues to be gathered, the area to be grazed extends, and this, together with the little grazing the waste lands of the village may afford, usually suffices for the bulk of the ordinary cattle throughout March and April. Where they may be both wet and dry fields, the stubble of the latter, as the *jonna* crop is harvested, affords a fair quantity of grazing.

OXEN.	Oagle or
Pasturing of cattle.	<p>The working cattle which remain in the villages are grazed in the waste lands and such occupied dry land as the ryots may hold and set apart for grass. Pasture land of the latter description is generally reserved for a month or two and kept clear of cattle till the grass is well up. During the time they are thus stationary in the village the working cattle are fed more or less on straw or <i>jonna choppa</i> as well, and this may be said to be continued throughout the year. The bulk of the cattle obtain fair grazing from the stubble in the cut fields during April, but from May, as the hot weather fairly sets in and every blade of grass disappears, straw is given to the ordinary cattle or cows also, as well as to the working bullocks, and the whole are generally folded at night in the fields. As a little grass springs up with the early rain, the paddy straw is more or less reduced until the bulk of the cattle depart once more to the grazing lands consequent on there being no ground to keep and feed them on, owing to the greater part of the land being ploughed. The payment for the grazing of the cattle whilst away is ordinarily reckoned at Ri a head all round for full-grown stock, and the <i>batta</i> and payments made to the herdsman are calculated at 8 annas a head, or Ri-8 altogether, as the expenditure all round for each full-grown animal sent from the villages. Two calves are ordinarily taken as equal to one full-grown animal when reckoning the number of head. Throughout the greater number of the villages of Rapur, Atmakur and Udayagiri there is sufficient area of jungle waste for the cattle to graze on throughout the year, and in many villages of Rapur and the western parts of Atmakur and Udayagiri large tracts are available for the cattle of other villages and taluqs. In the villages of the above mentioned western taluqs, where there may be merely sufficient grazing land for the cattle of the village, it is usual for the cattle to be grazed therein from the commencement of the rains in June or July, when the grass will revive and once more spring up, and for them to continue to be thus pastured till February. The whole of the jungle waste is not open to the cattle at all times, for, after the heavy burst of rain, invariably experienced about October, the best portion of the pasture land is preserved and kept clear of cattle for one or two months until the grass may have grown up well, when the working cattle alone are turned in and kept thereon so long as the pasture may suffice, another portion being similarly set apart for the ordinary cattle. The greater portion, or indifferent part of the jungle waste, is meanwhile retained as common to the whole village throughout the season to feed the working cattle during the early rains, and afterwards grass will often be dug and given green, and they will graze as well, but slightly only, as there will be little pasture, until turned into the reserved lands during November and December. Should the rains continue late the pasturage will prove fair till February. Towards the end of January, when the <i>jonna</i> crop may have come into ear, the younger shoots termed "zadu," which are not likely to mature, are removed and given to the bullocks, or very often they are picketed very close to the <i>jonna</i> fields during the day at this season and thus fed. After the working cattle may have grazed for the most part the pasture land reserved for them, the ordinary cattle are allowed on. Afterwards, as the wet and dry fields are harvested about February and March, the whole of the cattle graze thereon indiscriminately, and the stubble of the <i>jonna</i> fields usually suffices for cattle till the end of April, the working stock being fed with <i>choppa</i> or <i>jonna</i> stalks as well. When the cut fields become bare of fodder the ordinary cattle are turned into the scrub jungle to find what they can in the shape of leaves, and this slight provender is eked out with a little <i>choppa</i>, the working cattle being meanwhile housed</p>

Nellore Cattle. (H. T. Pease.)	OXEN.
<p>in the village and almost wholly fed on <i>chopda</i>. In parts of Rapur, Atmakur and Udayagiri, where there may be a lack of scrub jungle, the ordinary cattle are sometimes sent away to the Veligondah or Eastern Ghauts and adjoining hills both in this and the Cuddapah district, the Veligondah hills being the line of boundary between the two districts. Cattle thus sent for hill grazing are generally absent from their villages during June and July. In Kavali there are extensive jungle tracts to the south, and in the central portion of the taluq very dense in parts, which ordinarily afford pasture for a large number of the cattle of the taluq; but in few instances, where the jungle waste of the village may be slight, the cattle are sent to the jungles in the extreme south of the Kandukur taluq. The mode of pasturing is similar to that already described for the foregoing taluqs.</p> <p>Throughout the Kanigiri taluq there is but a slight extent of really fair grazing land, and very little more than indifferent scrub jungle, almost the whole taluq being excessively stony and very bleak and barren. The cattle are few in number, and are mostly fed within the village. When the early rains set in during June the cattle are now and again sent to the Veligondah hills or Eastern Ghauts, forming the boundary with Kurnool, or to the Mallamalli range of hills in Kurnool should they be very badly off for pasture in their own villages.</p> <p>In the Kandukur taluq, varying systems are met with. The system prevailing in the southern and coast villages assimilates to that of the neighbouring villages of Kavali; whilst in the northern villages or those under the influence of the south-west monsoon, where the principal crops may be <i>peda jonna</i> and <i>variga</i>, and there is hardly any waste land common to the villages for grazing, and, moreover, no jungle at all as a rule, it is usual for each ryot to retain part of his holding or puttah land as pasture. In a great measure this is permanently done by putting and keeping under grass land bordering on streams or cut up by water courses, or land lying low and liable to be flooded during the rains. Such tracts are extensively planted with <i>Tumma</i> trees, both of the black and white descriptions, <i>viz.</i>, <i>Acacia arabica</i> and <i>Acacia leucophloea</i>. Fields in the midst of the cultivation as well are occasionally set apart as pasture and planted out as above; and, after being under grass for eight or ten years, the ground is cleared of trees and broken up and once more brought under cultivation, and some other portion put under grass. The trees are yearly thinned to some extent; and when finally cleared away, are of considerable size and value, wood of any description being very scarce. The trees shade the ground and favour the growth of the grass, and the pods they yield form good fodder for cattle and sheep. The pasture land held in this way is invariably distinct for each ryot, and it is generally kept exclusively for the working cattle, young stock, and cows in milk. Should no other land be available in the village for the cows not in milk and heifers, it is usual to send them off in August, when the sowing season extensively commences, either to the jungles in the adjoining zamindary divisions of Podile or Darsi, or else to the Vinukonda hills in the Kistna district, to the north-west of Ongole. Meanwhile the working cattle and young stock which remain in the village are pastured in the lands set apart for grass by each ryot; and, during the rains, the working cattle are also fed with the husk and refuse leaf of the horse gram plant after beating out the grain, and likewise with that of the <i>pessara</i>, <i>minuma</i>, <i>kandi</i>, and Bengal gram plants, which are carefully stored for the purpose. The refuse from the <i>jonna</i> cobs is similarly preserved and given to the cattle; and, during the height of the ploughing season, the working cattle are fed with grain either <i>jonna</i> or horse gram</p>	Pasturing of cattle.
	Land fallowed by temporary cultivation of trees.

OXEN.	Ongole or
Cattle-food.	or else with cotton seeds. The <i>jonna</i> is usually bruized and boiled, and the horse gram and cotton seeds braized and soaked only. As the <i>korra</i> crop is threshed out during November, the straw is generally used up at once and not stacked; and after the <i>jonna</i> crop comes into ear, or early in the above month, the " <i>sadu</i> " or young suckers, not likely to mature, are gathered for the cattle and given green. During December the <i>jonna</i> is harvested, but owing to the <i>pessara</i> and <i>kandi</i> growing in the same field as the <i>jonna</i> , the cattle cannot be turned in; and often the <i>jonna</i> thus left will shoot up vigorously a second time and is now and again allowed to mature, but more generally it is plucked green and given to the cattle. These new shoots are termed " <i>Namu</i> " and after the <i>pessara</i> is gathered in January and the <i>kandi</i> in March, very fair feeding for the cattle exists in the <i>jonna</i> fields. Meanwhile, during January the <i>variga</i> harvest will have been mostly completed, and the <i>jonna</i> and <i>gongura</i> sown in the same fields will also have been eaten down for the most part by the cattle. As the hot weather sets in early in April, <i>pandals</i> are run up open to the east, but well enclosed to the west, to afford cover and protection to the cattle from the sun, and west or land wind. These <i>pandals</i> are formed of the stalks of the <i>kandi</i> , lamp oil, cotton, and chilly plants. The same material is used to construct the walls of the sheds in which the husk and refuse leaf of the horse gram and other plants, already specified, are stored for the cattle during the rains. As the walls of the sheds are run up, the husk is filled in, and the whole is thatched in with <i>sazza</i> straw. The straw stacks are generally on the same spot, and are fenced off. The working cattle are thus well cared for during the day, and at night are folded in the fields. The whole of the cattle are fed on <i>jonna choppa</i> during the hot weather, and until there may be sufficient pasture, or the cows, etc., may leave for the distant grazing lands in other parts. In Ongole the cattle are particularly well cared for and fed, and a fair number of young stock and cows are annually reared and disposed of or the young bullocks are broken to work and supply any casualties amongst the ryot's own ploughing cattle. It will be observed that the system of the northern taluqs differs considerably from that of the southern part of the district, the ryot's cattle being folded and kept in the land as much as possible about Ongole; whilst they are invariably housed in the villages throughout the extensive tracts under dry cultivation in the southern taluqs. It is usual besides in Ongole for the ryot to have a good stock of <i>jonna choppa</i> always on hand at the end of the season, to guard against any considerable deficiency of fodder during the ensuing year. The stalk of the <i>sazza</i> crop is not used as provender for the cattle, as it is not nutritious, but is kept for thatching houses, cattle sheds, and the like, save in the wet villages. Considerable herds of sheep and goats, particularly in the western taluqs, are kept. These flocks generally belong to the shepherds; but in many parts the ryots also own and rear a fair number. The wealthy and influential ryots of Nellore, Gudur and Kavali and the southern part of the Kandukur talug are often extensive cattle dealers as well as breeders. Gangs of men are despatched each year through the Kistna and Godavery districts, often far north of the latter district or inland to Dumagudem on the Upper Godavery, and they purchase and bring down large numbers of small bullocks and buffaloes. The buffaloes and part of the small cattle are sold in the wet villages of this district, and after being kept in the village a few months, the residue and the larger stock of the ryots' own rearing are despatched to the Cuddapah, Kurnool and Bellary districts and there sold. These ventures are sometimes very successful, but occasionally the reverse. The
Trade in cattle.	O. 551-94.

Nellore Cattle. (H. T. Pease.)	OXEN.
foregoing depicts the mode that has heretofore been pursued in pasturing cattle in Nellore; but the measures recently inaugurated, as regards the reservation of jungle tracts for wood, and the separate assignment to the ryots collectively of the equivalent of 30 per cent. of the area in occupation as common pasture for the village, alter matters and curtail the privileges the ryots previously enjoyed, more particularly in the western taluks, where there is a considerable margin beyond the 30 per cent., which, if not required to be reserved as wood, is now rented out in pasture farms. With the introduction of these measures the ryots, however, were relieved from the grazing or pullary tax, which was peculiar to this district. The change favours the large owners of cattle, and renders it more easy for them to secure pasture farms, as a much greater number of farms are now available and are put up to auction, and, as formerly, the farms are no longer altogether in the hands of the villagers.	New rules regarding grazing lands.

All communications regarding THE AGRICULTURAL LEDGER should be addressed to the Editor, Dr. George Watt, Reporter on Economic Products to the Government of India, Calcutta.

The objects of this publication (as already stated) are to gradually develop and perfect our knowledge of Indian Agricultural and Economic questions. Contributions or corrections and additions will therefore be most welcome.

In order to preserve a necessary relation to the various Departments of Government, contributions will be classified and numbered under certain series. Thus, for example, papers on Veterinary subjects will be registered under the Veterinary Series; those on Forestry in the Forest Series. Papers of more direct Agricultural or Industrial interest will be grouped according as the products dealt with belong to the Vegetable or Animal Kingdom. In a like manner, contributions on Mineral and Metallic subjects will be registered under the Mineral Series.

This sheet and the title-page may be removed when the subject-matter is filed in its proper place, according to the letter and number shown at the bottom of each page.